



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,235	02/28/2002	Mike X. Ouyang	CRNG.026	6961

7590 08/04/2005

VOLENTINE FRANCOS, P.L.L.C.
12200 SUNRISE VALLEY DRIVE
SUITE 150
RESTON, VA 20191

EXAMINER

SONG, SARAH U

ART UNIT	PAPER NUMBER
----------	--------------

2874

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,235

Applicant(s)

OUYANG ET AL.

Examiner

Sarah Song

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2005 and 19 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-23 and 36-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-23 and 36-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 and 19 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0105.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's communications filed on January 18, 2005 and May 19, 2005 have been carefully considered and placed of record in the file. Claims 14-16, 20 and 23 have been amended. Claims 36-39 are newly added. Claims 1-13 and 24-35 are canceled. Claims 14-23 and 36-39 are pending.

Claim Objections

2. Claim 22 is objected to because of the following informalities: Claim 22 is objected to as depending from canceled claim 1. It appears that claim 22 should depend from claim 14 and will be examined accordingly.

Appropriate correction is required.

3. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 39 and 40 have been renumbered 38 and 39, respectively.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2874

5. **Claims 14-19 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Adams et al. (U.S. Patent 6,181,852 previously relied upon).**

6. Regarding claim 14, Adams et al. discloses an optical element (fiber Bragg grating, column 6, line 38) comprising at least one layer having a substantially radially uniform thickness disposed about the optical element (column 6, lines 43-48). See Figure 1c also.

7. Regarding claim 15, the optical element is a fiber (column 6, line 38 and 47).

8. Regarding claim 16, the at least one layer is chosen from a metal (e.g. gold, column 6, line 46), and therefore from the group consisting essentially of: metals and metal alloys.

9. Regarding claim 17, one of said at least one layers is an adhesion layer (column 6, line 45-46).

10. Regarding claim 18, the adhesion layer is Ti (titanium, column 6, line 45-46).

11. Regarding claim 19, the metal includes Au (gold, column 6, line 46).

12. Regarding claim 23, the optical element is an optical fiber, i.e. a fiber Bragg grating (column 6, line 38).

13. Regarding claims 36 and 37, Adams also discloses the coating to be a non-metal or dielectric such as silica glass (column 3, lines 41-46).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2874

15. Claims 20, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al.

16. Regarding claims 20, 38 and 39, Adams et al. does not expressly disclose the at least one layer to be a piezoelectric material (e.g. ZnO, AlN, PZT, PLZT and LiNbO₃) or a semiconductor. Piezoelectric materials (e.g. ZnO, AlN, PZT, PLZT and LiNbO₃) and semiconductors for fiber grating coating layers are known in the art for their temperature sensitivity for effecting wavelength shift of the grating. Therefore, it would have been obvious to one having ordinary skill in the art to provide the at least layer of a piezoelectric material (e.g. ZnO, AlN, PZT, PLZT and LiNbO₃) or a semiconductor since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use since Applicant has not disclosed that the particular material solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any type of coating material.

17. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al. as applied to claim 14 above, and further in view of Rogers, Jr. et al. (U.S. Patent 5,135,554 previously relied upon).

18. Regarding claims 21 and 22, Adams et al. does not expressly disclose the uniformity in the range of approximately 95% to approximately 99%, or a thickness in the range of approximately 1 μm to approximately 100 μm .

19. Rogers, Jr. et al. discloses an optical element comprising at least one layer having a substantially radially uniform thickness disposed about the optical element (column 6, lines 17-

Art Unit: 2874

21 and 52-55; column 7, lines 1-2), said thickness to be 5.2 μm which is "in the range of approximately 1 μm to approximately 100 μm ".

20. Rogers, Jr. et al. also discloses a variation of 6% in thickness (column 6, lines 17-21), which is equivalent to a radial thickness uniformity of 94%.

21. Rogers, Jr. et al. does not expressly disclose a radial uniformity in the range of approximately 95% to approximately 99%.

22. However, it is noted that the term "approximately" allows for uniformity slightly less than 95%, such as 94%. Also, Examiner notes that Applicant does not teach that a uniformity of specifically 95% solves any stated problem, or is for any particular purpose. Thus, it appears that the coating having a uniformity of 94% would perform equally well.

23. Furthermore, since the disclosed uniformity is very near the claimed range, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties.

See MPEP 2144.05(I).

24. Therefore, the uniformity of 94% disclosed by Rogers, Jr. et al. renders obvious the recitation for "uniformity in the range of approximately 95% to approximately 99%" as claimed.

25. Since Adams et al. and Rogers, Jr. et al. are analogous art as pertaining to coated fibers, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the coating thickness with the uniformity as disclosed and suggested by Rogers, Jr. et al. in the fiber Bragg grating of Adams et al. for the purpose of minimizing microbend induced optical attenuation, as taught by Rogers, Jr. et al. (paragraph spanning columns 6 and 7).

Art Unit: 2874

Response to Arguments

26. Applicant's arguments filed s January 18, 2005 have been fully considered but they are not persuasive. Applicant states that Adams et al. lacks the disclosure of at least one layer having a substantially radially uniform thickness disposed about the optical element, further stating that Adams et al. does not qualify how the coating of Ti or Au is uniform, especially radially uniform.

27. Examiner respectfully disagrees. As disclosed in column 6, lines 45-48, Adams et al. discloses that the Ti and gold are evaporated onto the fiber while rotating the fiber to form the uniform coating. That statement would qualify to one of ordinary skill in the art that the disclosed uniform coating resulting from rotation is referring to uniformity in the radial direction. Furthermore, Adams et al. clearly shows in Figure 1c that the coating is clearly not uniform longitudinally, but is substantially uniform radially. Therefore, Adams et al. discloses all of the limitations as set forth in the rejection of claim 14. The dependent claims are also rejected as indicated above.

Conclusion

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period


Art Unit: 2874

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sarah Song
Patent Examiner
Group Art Unit 2874